Dairy Australia
Your Levy at Work

Fact Sheet 10:

Managing Manure

Key messages

- Manure fibres, sand, gravel and waste feed can decrease the storage capacity of ponds, wear out pumps and equipment, and cause blockages to irrigation systems.
- Adding a feedpad to a farm system may require an upgrade of an existing effluent system. It is good to get professional advice about the design of feedpads and effluent management at the planning stage of the project.
- If manure and solids need to be stored before applying them back to land, they should be stored on an impermeable surface which drains back into the effluent system.
- Manure is rich in nutrients and organic matter, and can be highly beneficial as a fertiliser and soil conditioner when applied to pasture or incorporated into the soil for new crops.

Manure fibres, sand and gravel, waste feed and other bits and pieces are all responsible for causing trouble in effluent systems. It can be helpful to separate some of these solids from the effluent stream to prevent them wearing out pumps and equipment, and blocking irrigation systems. Separating solids will mean the pond needs to be de-sludged less often, or may prolong the life of an otherwise overloaded pond.

Solids separation can be split into either mechanical or passive types. Some examples of mechanical separators are the Screw Press and Sloped or run-down screens.

A screw press uses a helical screw to squeeze the liquid out of the solids. These devices are good for thicker effluents and can produce solids with a lower moisture content.

On a slope screen, effluent flows down an inclined fine mesh screen; through which the liquid falls, leaving the solids behind to slide down the screen face.

Mechanical separators leave a relatively dry fibrous material which can easily be spread onto land. Be aware however, that mechanical screens typically remove less than one-third of the solids from the effluent stream – the remainder continues through to the pond (or re-use system) and will eventually need to be removed by desludging. You will also need a system for handling the separated solids on a regular basis; daily to weekly depending on throughput.

Passive systems which use gravity such as a solids trap, ditch or sedimentation pond, allow solids to settle out of the liquid and accumulate. The cleaner surface liquid can then continue on to a second pond where it may be stored until it is reused.

When you add in a feed pad, there is typically a lot more uneaten feed stuff, straw, silage etc. in the effluent. It may be possible to to scrape the solids material off so it doesn't go into the pond, and if it's a large operation you may need to look at a solids separation system to keep out a lot of that fibrous material which otherwise might choke up and overload ponds.Professional advice is strongly recommended for the design and installation of solids separation systems, and feed pads to avoid complications.

Some farmers have found incorporating solids into the soil before sowing a crop can increase crop yields and save money on fertiliser use. And, one advantage of re-using manure is that you don't have to cart a lot of water around, so it can be spread on back paddocks where the nutrients are most needed.

Gravity based separation is more effective at removing solids with typically half of the solids being removed. However, the settled solids in a gravity system typically need to be handled as a slurry; pumped, vacuumed or scooped out of the holding facility, and either dried out before being spread to land, or spread directly as a slurry using specialist equipment.

If solids are stockpiled and dried out for spreading, they should be contained on an impermeable surface where the runoff is captured within a bund (or bank) and directed back to the effluent system. A good solids storage pad is useful to have where any feedpads are cleaned by dry-scraping.

If a feed pad is being added to a farm system, all of the effluent and feed waste must be captured within the effluent system, so existing structures may need to be upgraded to cope with the additional loading.

References:

View Managing manure on dairy farms video

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